

COLONY OF MAURITIUS



ANNUAL REPORT OF THE DEPARTMENT OF AGRICULTURE

For the year 1918

No. 815/19

THE HONOURABLE THE COLONIAL SECRETARY,

I have the honour to submit the Annual Report for the year 1918 on Agriculture in Mauritius and on the working of the Department of Agriculture, during the same period.

SECTION I

AGRICULTURAL CONDITIONS IN 1918

2. On the whole the weather conditions experienced during the year 1918 must be regarded as distinctly favourable; no destructive cyclones were experienced and the returns for the cane crop were above the average. The accompanying table summarises the weather conditions during the growing season:

Climate

<i>Month</i>	<i>Temperature</i>	<i>Rainfall</i>	<i>Amount of Sunshine</i>
1917			
November...	Markedly below average for November.	Very considerably above average in all districts.	Normal amount experienced.
December...	1° C. below normal for month.	Deficient all over the island.	Above normal for the month.
1918			
January ...	0. 6° C. below normal for the month.	50 o/o below normal.	Markedly above normal.
February ...	1. 1° C. below normal.	Markedly above normal.	Below normal.
March ...	0. 5° C. below normal.	Variable, everywhere above normal.	Below normal.
April ...	Normal.	Very markedly above normal.	Somewhat below normal.
May ...	Normal up to 19th, afterwards considerably below normal, mean for month 0. 7° C. below normal.	Above normal.	Somewhat below normal.
June ...	Slightly below normal.	Below normal.	Slightly below normal.
July ...	Generally below normal.	Above normal.	Slightly below normal.
August ...	1. 6° C. below normal.	50 o/o below normal.	Above normal.
September...	Below normal.	Markedly below normal.	Normal.
October ...	Below normal, but variable.	Below normal.	Above normal.
November...	Normal.	Very deficient in most districts.	Above normal.
December...	Slightly above normal.	64 o/o below normal.	Considerably above normal.

3. As the outcome of the weather conditions experienced, the cane crop, while distinctly satisfactory on the whole, was relatively very much better in the lower parts of the island than in the more elevated districts. In Pamplémousses particularly excellent returns were experienced, the crop of sugar made being estimated at 32,153 tons, the largest ever recorded.

Sugar Industry

4. The total production of sugar for the Colony for the crop of 1918 is estimated to be approximately 252,370 tons. The following table shows the estimated returns from each district together with the output for the four preceding crops; returns are given in units of 1,000 tons:

Districts	1918	1917	1916	1915	1914	1913
Pamplemousses ...	32.153	24.32	20.17	17.94	30.83	27.56
Rivière du Rempart ...	32.298	25.02	25.75	21.60	35.23	30.35
Flacq ...	43.447	39.68	35.04	37.93	43.73	43.66
Moka ...	34.695	31.70	31.42	34.92	42.09	37.12
Plaines Wilhems ...	19.415	24.40	21.90	18.58	21.16	18.04
Black River ...	6.390				6.60	4.48
Savanne ...	40.519	38.45	36.12	40.65	46.71	41.38
Grand Port ...	43.453	42.35	37.63	42.92	51.01	47.11
Total ...	252.370	225.92	209.03	214.52	277.36	249.70

5. Of the total production of sugar it is estimated that 95.5 o/o is vesou, 1.4 o/o first syrups and 4.1 o/o low syrups. The proportion of vesou to the total crop shows a further marked increase on the previous year and is the highest ever recorded.

The following figures show the proportion which vesou has borne to the total crop during the past eight years and serve as an indication of the improvement in methods of manufacture which has taken place:

Year	Percentage Vesou to Total Crop	Year	Percentage Vesou to Total Crop
1911 ...	73.80	1915 ...	82.60
1912 ...	78.70	1916 ...	80.23
1913 ...	80.06	1917 ...	89.85
1914 ...	82.01	1918 ...	94.50

The improvement is due to greater care in the process of manufacture and to the increased demand for sugar of higher grade; in bringing about this result the steadily increasing prevalence of the process of double "turbine" is largely responsible. Bearing in mind the high proportion of vesou sugar at present being manufactured, the quality may on the whole be regarded as decidedly satisfactory, but there is in some instances still room for improvement in methods of clarification and filtration.

6. The quality of the canes handled during the crop was on the whole distinctly satisfactory, the saccharine richness being appreciably above the average. Data taken from the *Contrôle Mutuel* Sheets show that as a mean of returns from 32 estates the average composition of the cane handled at the Factories was as follows:—

Sucrose ... 13.63 o/o | Fibre ... 12.67 o/o

The average extraction of all factories for the crop was estimated to be 10.95, while the average figure for the sugar extracted o/o sugar in canes according to the *Contrôle Mutuel* figures was 81.1 o/o. The extraction of factories contributing to the *Contrôle Mutuel* for the last and for preceding years is given below:

Year	Highest recorded	Lowest recorded	Mean	No. of Factories
1914 ...	*12.15	9.83	10.76	34
" ...	†90.2	83.1	87.8	"
1915 ...	*11.72	10.07	10.83	38
" ...	†89.1	81.6	86.5	"
1916 ...	*11.16	9.59	10.30	36
" ...	†90.6	83.1	86.88	"
1917 ...	*11.54	9.82	10.62	31
" ...	†89.52	81.22	86.37	"
1918 ...	*12.17	10.40	10.95	32
" ...	†89.03	79.5	86.0	"

7. The conditions experienced during the reaping season were favourable to the harvest of the canes and practically all the factories had concluded their grinding season before the 31st of December.

8. During the year 54 factories operated, one factory was dismantled and the canes formerly handled by it distributed among adjoining estates. Owing to war condition only minor additions to plant and machinery have been possible. One economiser, 2 filter-presses, 46 Weston centrifugals, 2 dynamos, 5 suction-gas engines, and some 24 malaxeurs had been installed by the commencement of 1918.

* Commercial sugar extracted o/o canes.

† Commercial sugar extracted o/o sucrose in juice.

9. At the commencement of 1918 the total area under cane cultivation was estimated to be 168,356 arpents, an increase of 806 arpents over the similar figure at the commencement of the preceding year. Of this total, 92,538 arpents were cultivated by Estates and 75,828 arpents by Planters, estate cultivation representing 55 o/o of the total cultivated area. The total area under cultivation by Indian proprietors or lessees amounted to 72,633 arpents or 43.1 o/o of the total area. The increase in the area cultivated by Indians as compared with the previous year amounts only to 244 acres, this being the smallest recorded for many years past; the result is due to the feeling of uncertainty which prevailed as to the immediate future of the sugar market and also to the excessively inflated values for land which obtained during the past few years.

10. There are practically no improvements in relation to agricultural operations to be recorded during the year. This is in part to be attributed to war conditions which have to a large extent precluded the importation of agricultural implements. Some interest has been excited in the question of the possibility of the introduction of agricultural tractors, but no practical steps have been possible up to the present.

11. Pests and diseases of sugar-canes have attracted a good deal of attention during the year. Root-Disease has become more prominent in many localities and considerable areas are recorded as having been somewhat seriously attacked. In many such cases the advice of the Department of Agriculture has been sought and appropriate treatment given. It should be emphasised that the control of this disease is largely a question of agricultural methods employed.

12. In the District of Pamplemousses the control of *Phylalus Smithi* has been the subject of a considerable amount of activity. Early in the year, in a report presented to the Colonial Government and to the Board of Agriculture, the Director of Agriculture emphasised that the most serious factor of the situation was the gradual extension of the infected area by slow outward spread. The matter was further considered at a special meeting of Planters held at Pamplemousses in October 1918 and, with the co-operation of planters, measures were taken for the patrolling of the periphery of the infected area by special gangs with a view to controlling the outward spread of the pest.

13. In relation to the establishment of *Tiphia parallela*, the parasitic enemy of *Phylalus Smithi*, evidence accumulated during the year indicates that the insect has established itself satisfactorily at many points in the infected area and is already exercising a perceptible effect in controlling the pest.

14. In 1917 the attempt was made to introduce into the Colony *Scolia oryctophaga* as a parasite of the "Gros Mouton," *Oryctes tarandus*, which is responsible for considerable damage to cane field in different parts of the Colony. Evidence obtained during the year points to the parasite having satisfactorily established itself in the Colony and there seem to be reasonable grounds for expectation that satisfactory results may ultimately be secured as the result of this introduction.

15. Interest has continued to centre in the question of new and improved varieties of cane owing to fears which were expressed in some quarters that the White Tana variety may be degenerating. The question has received the careful consideration of the Department of Agriculture and a definite system of co-operative experiments with new varieties of canes has been laid out on a number of estates in different parts of the Colony. It is well to emphasise that agricultural conditions in Mauritius demand a cane which is capable of being ratooned for relatively long periods and as Professor J. B. Harrison, C.M.G., Director of Agriculture in British Guiana, has recently indicated, the breeding of varieties possessing these characteristics is very much more difficult than the production of new seedling canes which are capable of giving satisfactory returns as plant cane or as plants and 1st ratoons. With the exception of Mauritius and British Guiana, there are practically no cane countries where intensive methods of cultivation are practised, in which long ratooning is the rule, and consequently new varieties produced in other parts of the world are generally selected on account of their capacity to yield satisfactory crops of plant canes, their ratooning power being to a large extent ignored. Consequently the chances of securing satisfactory canes possessed of considerable ratooning power from countries outside Mauritius is naturally minimised. On the other hand the fact that cane varieties do eventually tend to degenerate renders essential that the work of raising and trying out new varieties of canes should be rigorously prosecuted since this affords the only means at present available of replacing cane varieties in the event of their ceasing to become serviceable.

16. The year 1918 will long be remarkable for the conditions governing the disposal of the sugar crop.

Early in July 1918 the Secretary of State for the Colonies intimated by cable to His Excellency the Governor that the Royal Commission on the Sugar Supply, would be willing to buy Vesou sugar for export to the United Kingdom, but that in view of shipping difficulties the total of such offer could not exceed 50,000 tons. At the same time it was stated that the embargo on the export of sugar would be raised so soon as arrangements had been made to ensure the provision of adequate funds in India for the purchase of essential supplies during the ensuing twelve months.

With reference to the price at which the sugar so taken was to be purchased it was, at a later date (July 23rd 1918), intimated that the offer made would be based on the average of prices paid by the Royal Commission during the past 4 years, 17 shillings and 6 pence being offered as the middle price with variations of 4 pence up and down for superior and inferior grades, prices in all cases to include 2 pence shipping commission. This offer was accepted by the planters of the Colony. The work of apportioning the amount of the Royal Commission purchase among planters and other holders of sugar was delegated by the Government to the Department of Agriculture, the Statistician of the Department, Mr. H. Robert, being placed in charge of this operation.

It was subsequently (September 6th) intimated by the Secretary of State that in the event of the Royal Commission finding itself in a position to purchase additional quantities of vesou sugar the price paid would be the same as for the first 50,000 tons.

In view of the possibility that grave difficulties might be encountered in disposing of the remainder of the vesou crop, owing to lack of freight, and in order to secure uniform treatment for all, while relieving the anxieties of planters, and stabilising the main industry of the Colony, the Secretary of

State for the Colonies in August 1918 authorised the Governor to submit the following proposal to the Chamber of Agriculture :

" That the Government should take over the whole of the vesou sugar of the 1918-19 crop, not already contracted for, and should sell it, on behalf of the planters on the following terms :

The Government would pay Rs. 7.50 per cwt. for all sugar ready for delivery. The sugar would then become the property of the Government and would be sold by the Government to the best advantage. All profit obtained after payment of expenses for storage, interest &c., would be distributed to planters in dividends as soon as it would be safe to do so."

This offer was accepted by the Chamber of Agriculture on behalf of the planters, and as Legislation was necessary to carry it into effect, a special Ordinance (No. 8 of 1918) was passed. Its main provisions were as follows :—

(a) It shall be lawful for the Colonial Government to take over the whole of the vesou sugar of the 1918-19 crop coming within one of the three grades mentioned below save and except (50,000) fifty thousand tons of vesou sugar of the said crop already purchased by the Royal Commission on the Sugar Supply and sugar intended for local consumption ; and all the sugar so taken over shall immediately on its being manufactured become the property of the Colonial Government, and shall not be liable to be seized or attached by any party claiming to have a right in or to the said sugar or being or alleging himself to be the creditor by whatever title of any one of the vendors.

(b) The Sugar so taken over shall at the expense of the vendor be sent to and stored in any dock or warehouse licensed to issue dock-warrants and shall remain therein at the risk and peril of the vendor pending its sale by the Colonial Government.

(c) The Sugar shall be graded by a Committee, to be appointed by the Governor, into three grades, namely :—

- A.—Fine to finest
- B.—Good to fine
- C.—Medium to good

Appeal from the findings of the Committee may be made within ten days from the date of their notification to the Vendor's Broker to a Board of Arbitrators to be appointed by the Governor. The decision of such Board shall be final.

(d) The Colonial Government shall pay seven rupees and fifty cents per hundredweight on the estimated weight of the sugar stored and graded as aforesaid, to the vendor's Broker on production of a delivery order accompanied by a certificate from the Dock or Warehouse aforesaid to the effect that the sugar has been received.

(e) For the purpose of providing funds for the above payment it shall be lawful for the Colonial Government to borrow in account current through the Crown Agents a sum not exceeding one million seven hundred and fifty thousand pounds sterling at such a rate of interest as shall be charged for the time being by the Bank of England but which shall in no case be less than $5\frac{1}{4}$ per cent. per annum.

(f) The Colonial Government shall sell all such sugar to the best advantage of all concerned, and the Governor may appoint a Committee to advise on the sale of such sugar.

(g) All profit obtained on such sale shall, after repayment in principal and interest of the sums borrowed by the Colonial Government and after deduction of all expenses for storage and other charges, be distributed to the vendors through their brokers in dividends as and when the Governor may direct.

Provided that on the repayment of the final dividend twenty-five cents more per hundredweight shall be paid for the sugar of grade B than for the sugar of grade C and twenty-five cents more per hundredweight shall be paid for the sugar of grade A than for the sugar of grade B.

(h) The above transactions shall be free from stamp duties with the exception of the stamp duty on receipts and shall be exempt from Registration.

To enable the operations under the ordinance to be carried out the Secretary of State made arrangements with the Government of the Federated Malay States whereby a sum of £1,750,000 was placed at the disposal of the Crown Agents bearing interest at the rate of $5\frac{1}{4}$ per cent. per annum.

Under the terms of the ordinance a Committee was appointed by the Governor to advise in connection with the sale of sugar ; this Committee consisted of fourteen members comprising leading planters and brokers and one or two officials, under the Chairmanship of His Honour Mr. Justice H. W. Prichard, the senior Puisne Judge of the Colony. In addition a grading Committee of two members and a Board of arbitrators of three members was also appointed.

The scheme worked most satisfactorily, the disposal of the crop proceeding much more favourably than had been at first anticipated ; by the commencement of November nearly half the crop (including the 50,000 tons purchased by the Royal Commission) had been disposed of. With the signature of the armistice matters further improved, freight became much easier, offers at enhanced prices were received, while the Royal Commission offered to purchase all unsold stocks at a price 1/- a hundred-weight higher than their original offer i.e. 18/8 per cwt. F.O.B. By December 20th practically the whole crop had been disposed of. The average sale price for the entire crop was 17/10, while actual prices ranged between 17/2 and 20/-. It was found that only £1,200,000 were required as advances from the Federated Malay States, and by March 31st 1919 this sum and the interest thereon had been entirely paid off.

17. Difficulties in relation to transport of cane and sugar by the Government Railways were experienced in an enhanced degree during the year owing to the impossibility of obtaining adequate supplies for the maintenance of engines and rolling stock.

Early in the year, it became apparent that, if the work of transporting the sugar produced in the colony, from the estates to town, was to be carried out, drastic economies would require to be effected in the transport of cane by the Government Railways. The matter was considered by the Board of Agriculture in February 1918 and subsequently a special Committee was appointed to advise the

Government as to the best means to be taken in order to secure this result. On the advice of the Committee it was decided to restrict all cane traffic beyond a maximum of 7 miles except in very special cases and to refuse all new cane transport. It was further found possible by arrangement between planters and estates to effect considerable economies in the transport of canes by railway.

18. Difficulties continued to be experienced in obtaining supplies of artificial manures for canes; potash salts have been practically unobtainable, while other manures have only been available at very high prices. Limited supplies of Sulphate of Ammonia have by arrangement with the Secretary of State for the Colonies, continued to be available throughout the year, the price quoted has been Rs. 650 per ton. It may once again be emphasised that an economic limit exists to the profitable nature of applications of artificial manures to canes, and that a point may occur when the cost of manurial applications exceeds the value of the resulting increase in yield; it is in consequence important to ascertain clearly the relationship between the cost of application of artificial manures and the value of the resulting increment.

19. By the end of 1918, 99,771 tons of sugar had been shipped; of this 48,148 tons were destined to Great Britain, 46,096 tons to India and the remainder to other destinations.

After the conclusion of the armistice a marked upward tendency was seen in current prices and the outlook for the immediate future appeared to be very favourable. Prices for canes have fluctuated much more widely this year and have ranged between Rs. 9 and Rs. 15 per ton. The restriction on railway transport necessitated by the need for economy in working has had the effect of restricting competition for small planters' canes to some extent thereby bringing about a tendency towards lower prices.

20. At the end of the year the condition and the immediate outlook of the sugar industry of the Colony appeared to be distinctly favourable. The advent of the armistice and the consequent relaxation in relation to Government freight requirements greatly ameliorated a situation which at the commencement of the crop gave rise to grave forebodings. The ultimate outlook for the industry is more problematical since, owing to its geographical position, the Colony is disadvantageously placed in regard to access to the majority of the world's markets. Now that facilities are likely to become available for the introduction of improved machinery and for the amelioration of methods of cultivation, it is hoped that full advantage will be taken of opportunities for the reinvestment of capital with a view to effecting greater economies in production and manufacture.

Subsidiary Industries

21. *Aloe fibre*.—Business in Aloe fibre has been largely suspended during the year, practically no offers being made owing to lack of tonnage; 1,974 bales of fibre were shipped as against 5,647 bales in the previous year. Some further experiments were conducted with the Corona Fibre Machine during the year, which indicate that the machine can after suitable adjustment quite satisfactorily decorticate Furcroea fibre. On the other hand the output of fibre is very much less than that which is obtained when Sisal is dealt with, and on this account the value of the machine as a decorticating agent for Furcroea is discounted in comparison with the local grattes. The most important point requiring elucidation in relation to the Fibre industry is whether the substitution of the cultivation of Sisal for that of Furcroea might not be more remunerative. In this connexion it must be remembered that to obtain satisfactory results with Sisal, good cultivation is essential; in this respect the plant differs markedly from Furcroea.

22. *Tobacco*.—During the past two years the Department of Agriculture has carried out extensive trials on the cultivation and preparation of the variety of tobacco known as *Tabac bleu* which is largely imported into the Colony from the neighbouring island of Réunion. The investigations have comprised planting trials, experiments on the curing of the tobacco in carotte, and the preparation and marketing of cigarette tobacco therefrom. These experiments have proved a complete success and demonstrate conclusively that tobacco of this type can be successfully produced in the Colony.

The process of curing followed is peculiar and consists in making the dried leaves up into bundles, termed carottes, which are tightly wrapped with aloe cord. The process of curing takes from one to two years, at the end of which time the tobacco is ready for manufacture.

The following summarised data concerning the results of the experiments, are appended :

Average yield of green leaf per acre	...	...	...	3½—4 tons
Cured carotted tobacco per cent. green leaf	...	...	...	10 o/o
Prepared tobacco per cent. carotted tobacco	...	...	...	34 o/o

There seems no reason why the production of tobacco for local consumption should not attain considerable importance. The fiscal system of the Colony at present requires growers to pay a license of Rs. 160 per acre before the crop is planted. The question of the revision of this system of taxation on tobacco is receiving the attention of the Government with a view to facilitating the development of the industry.

23. *Tea*.—The production of tea in Mauritius has for many years been a minor industry of some importance. The local production of tea for the past 30 years having been as follows :

<i>Period</i>	<i>Local Production</i>
1888-1897	5,000 kilos
1898-1907	32,000 "
1908-1910	35,000 "
1911-1915	38,000 "
1916-1917	30,000 "

Owing to the relative cost of labour there seems no prospect of Mauritius tea ever being able to compete successfully with the produce of India and Ceylon on the open market. Locally however the

case is different. Tea growers in Mauritius enjoy protection on the local market to the extent of 30 cents per lb. owing to the import duty imposed on produce from other countries, and there would appear to be considerable room for expansion of the industry. There is however a large import of tea.

Reports on Mauritius teas tend to show that they differ from the teas of India and Ceylon in flavour, their taste having been characterised as peculiar by the Imperial Institute.

Investigations made by the Department of Agriculture appear to indicate that these differences may at any rate in part be overcome by care and attention during the process of manufacture in which case it should be possible to increase considerably the demand for the local product.

24. *Limes*.—In 1917 the Governor directed the attention of the Board of Agriculture to the possibility of developing the cultivation of Limes in the Colony, and an experimental area of between twenty and thirty acres has been planted by the Department in Flacq. Isolated Lime trees growing at several points in the Colony thrive well and there does not seem to be any very obvious reason why the cultivation of Limes and the production of raw and concentrated Lime Juice could not be undertaken in the Colony with every prospect of success. A flourishing lime industry exists in certain of the West Indian Colonies, notably Dominica, under conditions which approximate to those which can be found at a number of points in Mauritius. Prices for concentrated Lime Juice before the war ranged round £18-30 per pipe of 108 gallons. In Dominica the costs of manufacture, shipping and charges were on a pre-war basis estimated to amount to £4-16-6d per pipe, and with prices in this region and making due allowance for probable increases in sale values owing to the effect of the war and corresponding increases in the cost of manufacture there seems no good reason why concentrated Lime Juice produced in Mauritius should not be able to find a profitable sale on the European market notwithstanding the longer transport and the increased cost of freight.

25. *Vanilla*.—There is no progress to report in relation to the Vanilla industry owing to the impossibility of obtaining freight for produce.

26. *Coconuts*.—Coconut plantations on the Pas Géométriques have continued to make satisfactory progress and the more advanced trees are in some places showing signs of coming into bearing. There seems every reason to believe that the cultivation of coconuts at suitable points on the littoral is likely to prove a remunerative undertaking, although plantations appear to take rather longer to come into bearing than is the case in countries in which the conditions are more fully tropical than in Mauritius.

27. *Cacao*.—There is no progress to report in relation to Cacao. As stated in previous reports, suitable localities exist in which Cacao grows very fairly well and there seems to be scope for considerable expansion on a moderate scale with a view primarily to local consumption.

28. *Fruit Industry*.—The fruit crop was remarkably good and litchis and mangoes were produced in quantities considerably above the average. Considerable interest has been aroused locally in the question of propagation of varieties of fruit trees and steps are being taken by the Department of Agriculture to organise a station for the propagation and distribution of good varieties of mangoes, litchis, avocado-pears, bread-fruit, citrus plants, etc.

29. *Pistache*.—The end of the year has witnessed a very considerable augmentation in the area under this useful crop, particularly in respect of plantations made by small cultivators. High prices have prevailed for pistache and for pistache-oil and press cake during the year, and efforts have been made to increase the cultivation of the crop both by reason of increasing shortages of oils and fats from outside sources and on account of the value of the crop as food.

30. *Maize*.—Considerably increased areas were planted in maize during the early part of the year, but in many cases owing to the heavy rainfall of March and April, disappointing results were obtained, particularly in the more elevated portions of the Colony. The Maize Sécherie at Mahebourg operated during the year and dried a quantity of maize for estates; on account of the high prices prevailing for maize, buying operations at the Sécherie were only conducted on a very limited scale.

Food Crop Production

31. War conditions and the consequent threat to the food supplies of the colony have continued to be felt in an increasing degree during the year and considerable efforts have been continued to bring about the extension of the cultivation of food crops. At the commencement of 1918 returns compiled by the Statistical Division of the Department of Agriculture showed that the area under food crops and vegetables had augmented from 9,400 acres to 15,675 acres, an increase of 66.70/o. At the end of 1918, although complete figures are not yet available, further marked increases have certainly been recorded.

32. In December 1918 the situation was rendered considerably more difficult as the result of information received from the Food Commissioner of Delhi that on account of the almost complete failure of the autumn harvest over the greater part of India, the Government of India had been compelled to take abnormal measures to control the exports of rice, the quantity which would be allowed to be shipped to Mauritius during the year 1919 being limited to 1,750 tons per month, that is to say approximately one-third of the normal amount.

33. In order to assist in the extension of the cultivation of food crops, the Governor appointed towards the end of the year a Food Production Committee. A vigorous propaganda was undertaken by the Committee and arrangements made with the Department of Agriculture for the free supply of planting material to small cultivators.

34. Other efforts made have included the extension of the system of temporary leases of suitable plots of Crown Lands to small cultivators for the purpose of cultivating food crops. The system though necessarily limited in scope has been productive of satisfactory results.

35. At the time of writing it is too early to say how far these efforts will be successful in coping with the difficulty which exists although it is abundantly clear that considerable further extensions in the area under food crops are taking place.

Live Stock.

36. In July 1918 a general census of the Cattle in the Colony was conducted by the Department of Agriculture in cooperation with the Department of Inland Revenue. The census revealed the fact that since the year 1914 the number of horned stock in the Colony had diminished by over 8,000 head. The diminution is directly the outcome of war conditions and is to be attributed in large part to the reduction in imports of stock, to the increasing price of meat, and to the enhanced cost of feeding animals. The decrease is most markedly in evidence in the case of milch cows and young animals. Legislation to check the slaughter of breeding cows and young animals has been passed by the Council of Government, which it is hoped will serve to ameliorate the position. The question of increased stock raising is of much consequence to the Colony and deserves most careful consideration. In this connexion, the improvement of pastures and the extension of cattle dipping are matters of great importance.

37. There were a number of sporadic outbreaks of Surra on Estates, one in Black River being of some magnitude. Adequate quarantine measures were imposed by the Veterinary Authority with the result that the outbreak was ultimately controlled.

38. Attention has been devoted to the dipping of cattle and the question of the extension of the practice has received consideration. In view of the potential importance of dipping as a means of controlling cattle disease, the further extension of the practice is very desirable. During the year new dips were erected on estates and there are now about 20 tanks in existence in the Colony.

Registration of Agricultural Chemists.

39. Preliminary and final examinations were held in the month of June under the Ordinance regulating the registration of Agricultural Chemists. Three candidates presented themselves for the final examination and one for the preliminary; all candidates were successful in passing. The examiners were the Director of Agriculture, Messrs F. Harwood, M.A., P. de Sornay and L. Fauque.

SECTION II**WORK OF THE DEPARTMENT OF AGRICULTURE***Staff Changes*

40. During the year Messrs. F. Birkinshaw and C. A. O'Connor were absent on military duty in Europe; their offices were respectively filled by Messrs. J. W. Shand Harvey and F. Berb  yer in an acting capacity.

Mr. E. Bedsy was appointed Writer in the Clerical Division in January 1918.

41. Annexure I gives details of the work of the Chemical Division. The number of analyses of manures for planters show an appreciable increase on previous years; this is especially the case in connection with fumiers, the shortage of artificial manures as the result of war conditions having greatly stimulated interest in the employment of this class of substance. A series of investigations into the characters of the teas of the Colony was carried out during the year, the results have been published in Bulletin form. Investigations were undertaken concerning the changes taking place in the process of fermenting tobacco in carottes and analyses made of locally prepared tobacco.

42. Annexure II gives details concerning the work of the Biological Division. Much attention has continued to be devoted to the campaign against *Phytalus Smithi* in the Pamplermousses area. Special attention was devoted to the question of controlling the outward spread of the insect and patrolling gangs were organised for the purpose of collection round the periphery of the infected area. To this work Estates in the infected area were asked to contribute and the whole cost of the additional patrols has been borne by Estates' proprietors in the vicinity.

Tiphia parallela has established itself to a further extent in the infected area and the work of disseminating the insect has been vigorously prosecuted; the survey of the infected area was carried out during the months of May and June and all fields on estates examined with a view to ascertain the degree of infection.

Root Disease of Sugar cane has occupied a considerable share of the attention of the Division and has been observed to a considerably greater extent this year than on previous occasions.

43. Annexure III gives details of the work of the Veterinary Division. This Division has been largely concerned with matters of a routine nature during the year. Investigations in connection with the occurrence of bovine tuberculosis have been continued.

44. Annexure IV concerns the work of the Statistical Division. In addition to ordinary routine work, this Division was called on to apportion among planters and usiniers the 50,000 tons of vesou sugar which it was arranged before the commencement of the crop should be purchased by the Royal Commission on the Sugar Supply. The work involving as it did the apportionment of a share of this sugar among close on 500 small and large holders presented considerable difficulties. The Division was also called upon for special duty in connection with the arrangements of transport of cane by Railway with a view to economising haulage. It should be stated that the work done materially assisted in effecting necessary economies.

A general census of cattle in the Colony was conducted by this Division in cooperation with the Department of Inland Revenue in the month of August.

45. Annexure V gives details of the work of the Agricultural Instructor. This officer was mainly concerned with work in connection with Co-operative Credit Societies and with propaganda for the increased cultivation of food crops. Appended to this Annexure is the report of the Overseer of Food Plantations. The scheme whereby about 500 acres of Crown Land were made available for cultivation by small planters during the year, has made satisfactory progress. A system of regular visits to small holders' plantations has been developed during the year.

46. Annexures VI to VIII give details of the work at the Experiment Stations and in the Botanical Gardens. The stock farm of the Department was maintained during the year and a number of pure bred animals of Indian and other breeds were born. Buildings were extended and additional areas of pasturages laid down.

Co-operative experiments in connection with varieties of canes and also manurial trials were extended. An engine and mill for the grinding of experimental samples of cane were erected at Réduit. Experiments with minor crops were continued. Experiments on the cultivation of tobacco were continued during the year and in addition a series of commercial trials were made in connection with the preparation and sale of the tobacco, the results will shortly be published in Bulletin form.

Annexure IX contains the report of the Manager of the Maize Sécherie for the year. During the time the Sécherie has not been operated it has been found possible to employ the services of the Manager for other lines of agricultural work, notably agricultural instruction and propaganda among peasant cultivators. The results achieved are on the whole distinctly satisfactory and indicate that there is abundant room for the extension of this kind of work in the district of Old Grand Port and Petite Savane.

47. Inspection of Plants imported into the Colony was continued by the Scientific Staff. 14 consignments were examined at the Post Office and 52 at the Customs.

48. The Director of Agriculture continued to discharge the functions of Registrar of Co-operative Credit Societies during the year. At the end of 1918 there were 23 Societies in existence, all of which were working satisfactorily.

49. In October 1918 a special Departmental Exhibit was organised by the Department of Agriculture in connection with a Horticultural Show arranged by the Société Horticole of the Colony. The Exhibit was made the occasion of displaying various exhibits illustrating a large number of departmental activities. It was visited by considerable numbers of people and attracted much attention.

50. The Director of Agriculture was appointed a member of a Commission to enquire into and report on Leases of Pas Géométriques for the purpose of growing *Casuarina equisetifolia*; he also served as a member of a Committee appointed to consider the possibility of reducing cane traffic on the Government Railway and of the Sugar Sales Committee. In December he was appointed a member and Chairman of the Food Production Committee.

Publications

51. The following publications were issued during the year :

Bulletin Series :

- Regulations and Syllabus of the School of Agriculture ;
- Foot-and-Mouth Disease ;
- The importation of *Tiphia parallela* from Barbados to Mauritius ;
- Food Stuff production in Mauritius ;

Leaflet series :

- Dipping Tanks ;
- The Use of Substitutes for Wheat Flour ;
- Fowl Cholera ;
- Pistache, Pistache-Oil and Press Cake ;
- The Mango-tree Borer.

The following memoranda and reports have been prepared and submitted to the Board of Agriculture :—

- (1)—Report on Methods of Fixation of Atmospheric Nitrogen.
- (2)—Memorandum respecting Railway Cane Traffic.
- (3)—Memorandum respecting Examination papers set for the Diploma of the School of Agriculture.
- (4)—Memorandum relative to Eckart's system of Cane Cultivation.
- (5)—Report on *Phytalus Smithi*.
- (6)—Preliminary and Final Estimates of Sugar Crop.
- (7)—Half-Yearly Report on the Work of the Department of Agriculture.

Legislation

52. The following Ordinances and Regulations relating to Agriculture were passed during the year :—

- Ordinance No. 1 of 1918, to restrict the Slaughtering of Cattle.
- Proclamation No. 4, to remit stamp duties and registration fees chargeable on instruments executed by or on behalf of "La Caverne" Co-operative Credit Society.
- Notification No. 36, regulations for the Registration of Agricultural Chemists.
- Notification No. 51, amending the Rodrigues Cattle Regulations.
- Proclamation No. 18, to proclaim certain areas in the Districts of Port Louis and Grand Port to be infected with a Plant Disease.
- Ordinance No. 10 of 1918, to amend and consolidate the Laws on Vanilla.
- Proclamation No. 42, to proclaim the Area infected with *Phytalus Smithi*.
- Ordinance No. 21 of 1918, to amend the Plant Diseases Prevention Ordinance of 1911.

School of Agriculture

53. There were 6 students in training at the School of Agriculture during the year ; 2 students completed their training and successfully passed their final examination for the Diploma of the Department ; namely : F. L. Smith and A. E. Bérenger. 4 students were attached to the Laboratories of Estates during the crop.

Courses of Lectures were delivered to students during the year, by the Director, the Asst. Director, the Entomologist, the Veterinary Surgeon and the Scientific Assistants. In all 49 lectures were given. The training which students receive in the School of Agriculture is widely appreciated and students who have passed the final examinations readily find employment. The broadening of the Syllabus has exercised a markedly beneficial effect; limitations of accommodation preclude the admission of a larger number of students but the applications for admission considerably exceed the accommodation available.

Expenditure and Receipts

54. The Expenditure of the Department has been as follows :—

EXPENDITURE				Rs.	c.
Personal Emoluments ...	...	...	...	51,012	07
Maintenance of Gardens ...	...	...	...	11,216	68
General Services ...	...	...	...	13,243	62
Prevention of Plant Pests and Diseases ..	...	...	...	21,537	57
Prevention of Animal Diseases ...	...	...	...	1,096	93
Upkeep of Stock ...	...	...	...	7,016	85
Upkeep of Experimental Dairy ...	...	...	...	822	21
Establishment of Demonstration Plots ...	...	...	...	1,908	53
Subvention to "Société Horticole" ...	...	...	...	500	...
Travelling Expenses ...	...	...	...	4,620	73
Miscellaneous Co-operative Credit Societies ...	...	...	...	10	...
Development of Maize Industry ...	...	...	...	15,235	44
Development of Tobacco Industry ...	...	...	...	5,196	23
Development of Lime Industry ...	...	...	...	1,316	95
Maintenance of Food Plantations... ..	...	...	...	3,139	18
Special—Improvement to Pasture of Cattle Station ...	...	...	...	1,486	92
" Purchase of Typewriter... ..	...	...	...	500	...
" Engine, Mill and Weighing Machine for Sugar Cane Experiments ...	...	...	...	1,890	03
" Importation of Stock (Poultry) ...	...	...	...	733	68
Total ...	...	...	...	Rs. 142,483	62

The receipts were as follows :—

RECEIPTS				Rs.	c.
Analytical Fees ...	...	...	...	494	...
Veterinary Fees (Surra treatment) ...	...	...	...	500	...
" (Customs) ...	...	...	...	529	...
Students' Fees ...	...	...	...	225	...
Rent of Tea Plantation... ..	...	...	...	1,100	...
Sale of Canes... ..	...	...	...	5,075	55
" Tobacco ...	...	...	...	891	84
" Flowers and Plants ...	...	...	...	1,444	28
" Eggs ...	...	...	...	449	25
Services and sales of Animals and Poultry ...	...	...	...	584	80
Government Maize Sécherie ...	...	...	...	477	53
Miscellaneous... ..	...	...	...	279	19
Total ...	...	...	...	Rs. 12,050	44

Examinations of the Institute of Chemistry

55. During the year an examination for the final diploma of the Institute of Chemistry was held in the Colony. Two candidates presented themselves : Messrs. F. D. Harwood and E. B. Hughes. The examination was held in the Laboratories of the Royal College and the Director of Agriculture undertook the supervision of the arrangements at the request of the authorities of the Institute. Both candidates were successful in passing the examination. At the request of the Council of the Institute and with the sanction of His Excellency the Governor, the Director of Agriculture was in December appointed Honorary Corresponding Secretary of the Institute for the Colony of Mauritius.

Miscellaneous

56. It may be added that Departmental work has been handicapped owing to the continued absence on military duty of the two principal outdoor officers ; moreover the services of the acting Agricultural Instructor, Mr. Shand Harvey, have only been available in a part-time capacity owing to his being called on to fill the post of Censor to the Government.

At the same time existing work has been maintained and many new lines of activity called for and undertaken. These circumstances have entailed considerable extra work on the part of members of the Department's staff which has been ungrudgingly given and of which I take this opportunity of expressing my appreciation.

H. A. TEMPANY,
Director of Agriculture.

14th March, 1919.

ANNEXURE I.REPORT ON THE WORK OF THE
CHEMICAL DIVISION

The following analyses were carried out by this division during the year :—

					Samples	Dosages
Fumiers & Guanos	...	...	...	...	55	92
Artificial manures	...	...	...	...	18	31
Lime	...	...	...	...	16	16
Teas	...	...	...	...	26	234
Cane-Juices	...	...	...	...	791	1,648
Cane-Sugar	...	...	...	...	12	12
Molasses & Fgouts	...	...	...	...	3	9
Miscellaneous...	...	...	...	...	20	43
					941	2,085

Fees amounted to Rs. 444. In addition physical analyses of 3 local soils were performed.

Tobacco trials

In June Mr. F. L'Estrange (junior) was attached to the Chemical Division to carry out experiments in connection with the preparation of cigarette tobacco from the Réunion tobacco grown by the Department, and to perform such analytical work as was found necessary.

Experiments on local Teas

A considerable amount of work was carried out during the year in connection with the examination of teas produced locally. Twenty-six samples of local and imported teas of various grades were analysed and an attempt made to determine the more important differences between local and imported teas and to ascertain the reasons for those differences.

Marked differences were found to exist, particularly in regard to flavour and aroma, and evidence produced which rendered it fairly certain that improvement in methods of plucking and fermentation was desirable in the case of many local teas. These experiments should be continued in the future, trials with various modifications of manufacturing processes being carried out in cooperation with local growers and the resulting products examined and reported upon.

The results of the trials, together with short descriptions of the methods recognised in other producing countries, have been published as a bulletin of the Department.

Mutual Control Figures

As usual the factory figures for those estates which have agreed to contribute their figures for publication have been checked and issued. Figures were supplied for all or part of the crop season by some 30 estates.

Many estates began this year to contribute figures weekly instead of fortnightly, and in consequence the work of checking has been greatly increased.

Cane Experiments

A small power engine and mill have been installed capable of handling about half-a-ton of cane per working day. Trials were made by this Division involving the analysis of large numbers of samples of juice and bagasse.

In addition trials were made of variations in the composition of certain standard varieties of cane under different conditions of climate.

Laboratory supplies

Shortage of apparatus and chemicals became acute during the year. For the past four years the laboratory has largely subsisted on the stock accumulated by the Station Agronomique previously to 1913, and this accumulation has been partially exhausted.

G. G. AUCHINLECK,
Chemist.

ANNEXURE II.REPORT ON THE WORK OF THE
DIVISION OF BIOLOGY*Phytopathology*

Pigeon Pea.—A serious disease of the root system was noticed for the first time, in 1918, at Réduit and Pamplémousses, on varieties imported from India. The fungus has not been identified through lack of time.

Sugar Cane.—Much time was devoted to research work on the disease affecting the root of this plant. This disease seems to have been much more prevalent in 1918 than in previous years. Cases were reported from all districts, both on virgin canes and ratoons.

A series of experiments was conducted with a view to finding the actual cause of the disease. More than eight different fungi have been isolated from diseased roots. These were grown on artificial media and subsequently inoculated to healthy plants.

Up to now, nothing definite can be expressed as regards the true cause of the malady, for several undetermined factors, which decrease the normal resistance of the plant, come into play, and render it liable to the attacks of one or more saprophytic fungi. It would seem, however, that cultural methods, have much more to do with the trouble than is suspected, as, in many instances, diseased plants, submitted for examination, have recovered when planted at Réduit.

The researches are still being continued.

Filao.—Experimental infection with the spores of the fungus "*Trichosporium vesiculosum*" inoculated under the bark and spread over the soil, failed to determine the disease on healthy plants grown at Réduit.

Bacterial Diseases

Potato and Tobacco.—The bacterial wilt of Solanaceous plants was noticed on several occasions.

The disease on potato was not of an alarming character, whilst on tobacco, it assumed a more serious form and caused the rot of the main stem of a fair number of plants, thus involving a certain amount of actual loss.

Sugar-Cane.—Bacterial rot of the heart was reported from various districts. In spite of its being more conspicuous than in previous years, it did not cause any serious damage. Noticed on several estates with such an abnormal character it created a certain amount of alarm during a short time, it appeared however that the disease was favoured by the exceptional climatic conditions which prevailed at the beginning of the year.

Insect Pests and other Parasites

Sugar-Cane.—The investigations carried out on the root disease of this plant, brought recently to light the presence of an unsuspected natural parasite of the roots, an eel-worm. From that time, whenever root disease was reported the eel-worm (*Tylenchus sacchari*) was detected, and, in certain cases, was considered as the actual cause of the death of canes. This parasite, with fungoid association, might be responsible, to a great extent, for the so-called Root-Disease of the sugar-cane in this Island.

Further investigations are being carried out.

Pigeon Pea.—Several lepidoptera (moths and butterflies) have been noticed as damaging pigeon-pea pods to such an extent as to cause the total destruction of the crop.

Polyommatus boeticus, *Botys* sp., and an undetermined *Tortrix* were found to be the most injurious in attacking the pods as well as the flower-buds.

Spraying with Arsenate of Lead did not prove very efficient for various reasons such as windy weather at the time of flowering; continuous flowering of the plant, which would necessitate repeated sprayings; insufficient adherence of the poison, and sensitiveness of the plant to Arsenic compounds.

Citrus Trees.—Citrus trees were badly infected with Black Aphis. Control experiments were undertaken with "Katakilla." This commercial preparation proved as good as a strong solution of tobacco extract, and gave excellent results against this pest, as well as against other Aphids, such as the artichoke Aphis.

Other Fruits.—Peaches were very badly attacked by the apple maggot, *Cydia pomonella*, especially at the beginning of the season.

No remedy, in the shape of poison sprays, could be tried as the fruits are infected when they are full-grown and about to reach maturity.

Nectarines, guavas and granadillas were much more infected by the fruit-fly, *Ceratitis catonii*, than in previous years. These two pests are becoming every year more and more common, as no treatment whatever has been ever tried to check their spread.

Establishment of *Scolia Oryctophaga*

The rearing of this species was continued in the insectary, but had to be given up, as the progeny of the last female was parthenogenetic and consisted only of males.

Male and female specimens of this scoliid have been caught at Riche-Bois and were noticed on the wing at Réduit, fourteen to sixteen months after the liberation of the imported wasps, thus affording obvious proofs of the establishment of the species.

A bulletin on this question is in preparation.

Tiphia parallela

Besides adult wasps, parasitized *Phytalus* larvae were detected far away from the original centre of liberation.

The presence of this insect at Espérance and Maison Blanche, has been felt much more than in the preceding year, for there is a greater reduction in the number of beetles this season.

Extension of *Phytalus* Campaign

The destruction work against this pest has been greatly extended. Owing to the spread of the insect, special gangs were employed at the periphery of the infected area, with a view to limiting the extension of the pest. Co-operative funds, from planters, were much more substantial, and every effort was made for the control of the insect.

The declared infected area was extended to Notre-Dame, on the South, Bon Espoir, on the North and Plaines-des-Papayes, on the West.

The number of beetles destroyed was 49,006,813 and the expenditure Rs. 21,943.39.

Poultry

An outbreak of fowl cholera, resulting in heavy losses to the community, took place in March and lasted several months. A leaflet on the disease could not be issued until May, but in the mean time, information respecting preventive measures, was given to those who applied to this Department.

Two additional runs were set up for raising chicks with a view to restocking the runs and avoiding, as far as possible, the importation of birds from abroad; experience having proved that the rearing of pure breeds is much less difficult with birds born in the island for several generations.

A Bulletin on "Poultry in Mauritius, Their Diseases, Breeding and General Management" has been completed during the year.

The revenue from eggs and poultry sold during the year reached a total of Rs. 542.15, while expenditure amounted to Rs. 528.60, leaving a profit balance of Rs. 13.55.

D. D'EMMERZ DE CHARMOY,
Entomologist.

ANNEXURE III.

REPORT ON THE WORK OF THE VETERINARY DIVISION

Importation of Animals

During the year 1918, twenty-seven steamers and schooners have been inspected. The animals imported have been allowed to land with the exception of one herd of sheep and 12 bullocks, which were placed under observation at Fort George. Two dogs imported from Madagascar have been placed under observation for three months.

Inspection of Government Animals

Animals, the property of Government, have been treated as follows :—

Police.—Horse treated and cured for limping; one horse was operated upon successfully for a capped elbow and another cured of colic.

Wood & Forests Department.—One donkey suffered from lameness and a second one was affected with a sand crack: both recovered; a third animal died of Tetanus.

Medical & Health Department.—One donkey slightly wounded was cured.

Immigration and Poor Law Department.—One animal treated and cured from a quittor.

Barkly Asylum.—One cow assisted for calving.

Department of Agriculture.—One donkey operated upon for Tumour and a second treated for colic. One sheep died of peritonitis and a goat treated for luxation.

Stud Animals.—All the cows at the Cattle Station, Réduit, calved and the young ones improved considerably. One Mysore bull died of congestion whilst on loan at Tamarin Estate; a Hissar bull was treated for eczema on his return from Case Noyale Estate.

Tuberculin Tests

Tuberculin tests have been carried out on the following estates :—Belle-Mare, Richelieu and Beau-Rivage. On 178 animals tested, 2 positive reactions have been recorded.

Contagious Diseases

Piroplasmosis.—This disease has been detected at Pailles and Choisy Estates. Several animals died thereof. Injections of Trypan blue were effected on several occasions, but with unsatisfactory results. The erection of a Dipping Tank at Pailles Estate has given good results.

Surra.—Three mules, one horse and one poney have been treated at the Bacteriological Laboratory for Surra. One mule died of Meningitis, another one of general emaciation and cachexia. The third mule was cured and delivered to its owner. One horse died of heart failure and a poney died of Nephritis, after several relapses.

The disease was detected on eight estates during the year. The local Soamin and Arsenic method applied on the cattle infected has given satisfactory results. Two cases were detected in Port-Louis on one horse and one mule, which have both been slaughtered.

Epizootic Lymphangitis.—Three cases of this disease have been recorded during the year. One horse was slaughtered, being incurable; one poney recovered after 3 months quarantine and treatment, and one mare is still under quarantine.

Meat Inspection

Six carcasses have been seized at Rose-Hill Slaughter-House for Tuberculosis and brusing; loins, lungs and mammary glands have as well been seized for hepatitis, pneumonia and mammitis. Several seizures have been maintained at Curepipe market and on one occasion three carcasses examined and found fit for consumption.

Cases of Cruelty and Bestiality

The Police Department was assisted in three cases of cruelty to animals and in one case of bestiality. After examination of the animals certificates were forwarded to the Inspector General of Police.

F. E. LIONNET,
Government Veterinary Surgeon.

ANNEXURE IV.REPORT ON THE WORK OF THE
STATISTICAL DIVISION

The usual statistical data were furnished to the International Institute of Agriculture at Rome, to the Board of Trade, to the Immigration Department, to the Secretariat for the Agricultural Section of the Blue Book, etc.

Other statistical questions dealt with included: Final estimate 1917-18 crop; quantity of vesou sugar still remaining up-country in January; average extraction sugar per cent cane of 1917-18 crop; average vesou percentage; local consumption of sugar; average sugar sale price; preliminary estimate of the 1918-19 crop; probable vesou output 1918 crop, and probable monthly arrivals of vesou in town; investigation into minor agricultural productions (tea, etc.) monthly reports on cultural season, and other such work.

The Division was called also to report upon the following subjects: the price of maize in the colony, the La Ferme Irrigation area, Rodrigues Tobacco, average production and consumption of Tea in the Colony, horned cattle in the colony, extra fuel consumption by usines, cost of manufacture, &c.

A bulletin was published on Food stuffs and the necessity of increasing the local production thereof, and another was prepared on the last Cattle Census.

The Statistician was called upon for special duty during the year in connection with arrangements for the reduction in Railway Cane Traffic.

The Division was also called on to apportion between individual planters the 50,000 tons of vesou sugar which at the commencement of the crop was announced as the total amount which the Royal Commission would be prepared to purchase. The work was undertaken at very short notice and was completed within three weeks. It is satisfactory to be able to record that in spite of the fact that the work entailed the distribution of sugar among close on 500 different holders, the adjudications were accepted without objections by all parties.

Area under Sugar-Cane

There were in 1918, 168, 366 arpents under cane cultivation, against 167, 560 in 1917, an increase of 806 arpents, the lowest since 1911. In the intervening period of five years, the total recorded increase was 23,080 arpents, giving a yearly average of 4,616 arpents. It is now obvious that practically all the lands suitable for cane cultivation have been planted.

Out of that total of 168, 366 arpents, 72, 633 or 43.1 o/o are under cultivation by Indians.

The 1917-18 Crop

The total sugar crop of 1917-18 was Tons 225,970. The estimate of this Division in July 1917 was 224,000 tons.

The 1918-19 Crop

Though final figures will not be available until March next, the total crop will certainly attain the final estimate of December 18th, 1918, viz; T. 252,370, against 255,000 tons as estimated on May 31st, 1918. The vesou percentage will be very nearly 95, the highest ever recorded.

Average Yearly Sugar Production

The average yearly sugar Production of the island during the last three quinquennial periods has been as follows:

<i>Period</i>				<i>Average Metric Tons</i>
1904-08	...	...	...	183,000
1909-13	...	...	...	221,400
1914-18	...	...	...	235,800

Sugar Movements.

The highest figure of sugar arrivals in Town during last crop (1918) was recorded in the week ending on October 11th, when 174,052 bags, or a daily average of 29,009, were received in the Docks. In 1917, the week with the largest number of arrivals (ending November 9th) showed a total of 163,225 bags, a daily average of 27,204. The first million bags of 1918 crop had reached town on October 8th, very near the 1914 record (October 5th). The second million was received last year on November 24th. This is the third occasion on which the second million was recorded as reaching town in November, the first being in 1913 (25th) and the second in 1914 (15th). The third million bags of the 1918 crop reached town on February 19th, 1919, while the three other crops which, like 1918, exceeded the limit had their 3rd million in town on the following dates: 1914 crop, December 31st; 1913 crop, February 19th; 1914; and 1909 crop, March 7th, 1910.

General Cattle Census 1918

During the year a general census of horned-cattle was conducted by the Revenue Department under the direction of the Department of Agriculture.

A bulletin has been prepared and will be published shortly on the subject.

A decrease of 8,331 head has been recorded, compared with the 1914 census figure, i.e. 32,970 against 41, 301, or 20.1 o/o decrease.

The largest decrease (43. 4 o/o) was recorded among the milch cows: 7,288 against 12,868 in 1914, while the number of draught cattle remained practically the same 10, 139, against 10, 275 in the previous census.

The decrease among milch cows was exceedingly pronounced in 1914 and 1915. The outcome of the wholesale slaughter of cows which took place at the beginning of the war was a decline in the milk production and a sharp rise in the price of milk, the estimated annual production of which has diminished from 17,654,500 litres a year, in 1914, to 10,640,500, in 1918, that is a decrease of 40 o/o; on the other hand the average retail price of milk has increased by 66.66 o/o.

At the same time the average value per head of horned cattle has considerably increased, passing from about Rs. 80 in 1914 to not less than Rs. 194 in 1918, giving a total value of of Rs. 6,400,000 for 32,970 head of animal, as against Rs. 3,400,000 for 41,300 head existing in 1914.

A graph was prepared to indicate the history of the cattle raising industry of this Colony, since the British occupation showing the variations in the number of head together with importations during that period. This graph shows strikingly the manner in which the importation has almost invariably proved a controlling factor in the fluctuations of the number of head of cattle in the Colony which have occurred, rising when the number of live stock was decreasing and falling when it was increasing.

The total number of head of cattle imported during those 109 years was found to be 711,952, or an average of 6,531 per year. The highest yearly average was observed during the 1860-69 decade, viz. : 10,697. The record year was 1863, when the total importations rose to 14,557. The total value of the 711,952 head of cattle imported is put at Rs. 52,000,000, giving a yearly average of Rs. 477,000—over 97 o/o of the animals were brought from Madagascar.

Foodstuff Plantation

The usual survey of the minor crops was made and revealed a most encouraging increase in food-stuff plantation, both on and off the sugar-estates. A total of 15,675 arpents was recorded in 1918 against 9,400 in 1917, i.e. an increase of 66.7 o/o.

Grain and roots (manioc, maize, potatoes, pistaches, sweet-potatoes, arouilles, &c.) accounted for 13,175 arpents against 7,950 arpents in 1917, while vegetables occupied about 2,500 against 1,450 in 1917.

Manioc covered 3,750 arpents, against 2,400 in the previous year while the acreage under maize was put down at 6,150 arpents against 3,000 in 1917.

A considerable increase occurred in intercalar plantations. About 2,500 arpents of maize were planted in the *entrelignes* of young canes, while, outside the regular vegetable gardens, more than 1,500 arpents of pumpkins, tomatoes, haricots, margoze, potatoes, &c. were grown on *entrelignes* of young canes, or between rows of maize or young filaos. Arouilles were also planted on a fairly large scale in young cane rows.

Unfortunately the summer plantations of maize gave, in general, low returns, through excess of rain and the effect of wind, while the winter plantations suffered from drought. Tomatoes and haricots were also severely affected in many localities by excess of rain. In the old Grand Port belt including Quatre-Sœurs, a great many onion plantations were washed into the sea by heavy summer downpours.

Usine Extra Fuel Consumption

This Division made a brief enquiry during the year into Extra Fuel Consumption by Sugar Factories, which established that very visible progress had been made in the usines in the direction of fuel economy. A decrease of at least 40 o/o has been recorded since 1912 in the extra fuel consumption. Such satisfactory results are due to many contributing improvements, such as a reduction to a minimum of the loss of heat by radiation from steam pipes, etc.; to less imperfect combustion, i.e. by improved fire grate installation so as to utilise more fully the heating power of the fuel; to judicious regulation of the flue area; to a closer attention to the waste gases, to gradual reduction in the number of separate "moteurs," which in certain usines are still excessive and which consume an enormous quantity of live steam and moreover cause great loss of heat by radiation from the steam pipes which feed them. Allusion may also be made to the care with which all "échappements" (exhaust steam) is utilised, the installation of modern engines with improved efficiency, and, finally, the installation of Green Economizers, which utilise the heat of the waste flue gases to raise the temperature of feed-water from say 70°C. to 120°C.

Rodrigues Tobacco

At the request of the Governor, a report was prepared on the Rodrigues Tobacco industry, comprising information concerning varieties cultivated, importations into Mauritius, average sale price at Rodrigues and in Mauritius, and channels through which the produce is disposed of.

It was shown in this report that tobacco take the 4th place among the produce exported from Rodrigues, coming after saltfish, acacia seeds and goats and sheep, and representing 10 o/o of the value of the total exports, which reached an annual average value of Rs. 182,000 for the last five years. The average annual imports of tobacco into Mauritius from Rodrigues for the same period was 31,764 kilos, while the average declared value was Rs. 51.06 per 100 kilos.

There are two tobacco crops at Rodrigues, the "grande saison" or summer crop, and the winter or "petite saison" crop. The two crops combined give about 36 o/o of No. 1 grade, 27 o/o of No. 2 grade and 37 o/o of No. 3 grade tobacco. The greater part of No. 1 Tobacco is purchased by Indian dealers and is principally sold on sugar estates by Indian hawkers. Chinese dealers buy some of grade No. 1 and almost all available quantities of Nos. 2 and 3. The tobacco is either "carotted" for cigarettes, or serves as "filler" for cigars, or is pulverized and retailed as chewing tobacco.

Rodrigues tobacco arrives in Mauritius generally in good condition.

The Tea Industry in Mauritius

According to information collected by this Division, the estimated local consumption of tea was found to be approximately as follows, during the last four decades :—

<i>Periods</i>	<i>Imports</i>	<i>Local Production</i>	<i>Available for Consumption</i>
1878-1887	... 27,963 Kilos	 Kilos	... 28,000 Kilos
1888-1897	... 42,806	... 5,000	... 48,000
1898-1907	... 45,976	... 32,000	... 78,000
1908-1910	... 51,600	... 35,000	... 86,000
1911-1915	... 68,752	... 38,000	... 106,000
1916-1917	... 98,146	... 30,000	... 128,000

The rate of importation has considerably increased since 1916 exceeding no doubt the normal rate of increase of consumption and evoking some complaints from the local producers. The annual consumption of tea however certainly exceeds 100,000 kilos, at present. The total area under tea in this Colony is about 300 arpents, all at an altitude from 1500 to 1900 feet above sea-level. The average annual production may be placed at about 35,000 kilos per year.

HENRI ROBERT,
Statistician.

ANNEXURE V.

REPORT ON THE WORK OF THE DIVISION OF EXPERIMENT STATIONS

Report of the Agricultural Instructor

Mr. F. Birkinshaw, the Agricultural Instructor, continued to be absent from the Colony on military duty with the Imperial forces during the year and I have continued to discharge the duties of the office of Agricultural Instructor.

Co-operative Credit Societies

The greater portion of my time has again been occupied with the supervision of the work of the Cooperative Credit Societies of the Colony. Full details of the working of these Societies is contained in the report of the Registrar of Cooperative Credit Societies which is published as a separate document. It may here be remarked that the Societies continue to work well and that the present position can be regarded as on the whole most satisfactory. The Societies are expanding in usefulness and the stability of the movement seems assured.

It should be emphasised that apart from their functions as means of providing working capital for small planters the Societies are assuming an importance as centres for the general dissemination of agricultural information and as organisations for efforts in special directions an example of which may be cited in the case of the allocation of blocks of Crown land for the cultivation of food crops. It is further proposed during the coming year to employ them in connection with the policy of peasant agricultural shows which it has been decided to embark upon.

Demonstration Plots

The Grand Bois demonstration plot was closed during the year. A new plot was laid out at Mahebourg. The Long Mountain plot was remodelled during the year, being laid out into two sections one half being devoted to trials with Sweet Potatoes, Yams, Pistache, and other food crops, together with a small plot of Tobacco, the other half being planted with 32 selected varieties of cane. The whole plot was neatly laid out in paths and the lower section enclosed with a wire fence. The Mahebourg plot was laid out on a piece of ground belonging to the Government in the centre of Mahebourg. It has been laid out in paths and planted in varieties of food crops: it is enclosed with a wire fence and presents an attractive appearance. The demonstration plot at La Ferme has been maintained.

The original idea underlying these plots has been modified as the result of experiences: under original system the working of the plots was left largely in the hands of the Secretaries of Cooperative Credit Societies with occasional visits of inspection from the Agricultural Instructor.

Under the new system recently inaugurated a special officer is made responsible for the conditions of each of the plot, the Mahebourg plot being under the direct control of the Manager of the Maize Sécherie; the Long Mountain Plot under that of the overseer of the Botanical Garden of Pamplemousses and the La Ferme Plot under the Overseer of Food Plantation.

Worked in this way the plots attain their maximum usefulness as object lessons and as centres for information and also serve as useful points for the distribution of planting material.

School Gardens

Sites were inspected and advice given as to school gardens at Grand'Gaupe and Case Noyale.

Instruction in Agricultural Matters to Small Planters

Every opportunity was taken of visiting the holdings of small planters and advice was tendered in relation to planting operations. Large numbers of leaflets and other Departmental publications were distributed. On the whole a distinct tendency towards improvement is visible in relation to small planters' canes. Owing to the high price of artificial fertilisers the necessity for conserving and employing all naturally occurring fertilising materials was impressed on small planters. Special efforts continued to be made to emphasise the absolute necessity of planting increased amounts of foodstuffs. In addition to personal visits, arrangements were made for the Overseer of Food Plantations and the Manager of Maize Sécherie to pay regular visits to the holdings of small planters in connection with propaganda of this description. Large quantities of planting material were distributed without charge among peasant agriculturists and a register of available planting material was kept at the head office in which were entered all estates which notified the Department that they possessed supplies in excess of their immediate requirements.

While it is as yet too early to gauge the full effect of these efforts, nevertheless, it is clear that a very marked advance has been achieved. As the result of enquiries instituted by the Director of Agriculture at the commencement of the year, it transpired that by the end of the month of January 1919 the area under cultivation by small planters in such crops as maize, patate, manioc and pistache had increased by 1,640 acres, while the area cultivated in green vegetables had also increased by a

further 567 acres. In bringing about this result the work accomplished by the Department can lay claim to have borne a not inconsiderable share.

Government Food Settlements

This line of work which was inaugurated during 1917, has made satisfactory progress during the year. As indicated in the last Annual Report it comprises a system of leases of blocks of Crown Land to groups of small cultivators for the purpose of cultivating food crops. The leases are of short duration usually annual with the option of renewal for two more years, and a yearly rental of R. 1 per acre per annum is charged. Cultivation is restricted to crops approved by the Director of Agriculture. Altogether approximately 400 acres have been allocated in this way. Two systems have been followed; under one the land is subdivided into blocks of one acre each and leased to separate individuals; in the other the whole block is leased to one body representing a group of individuals and subdivided subsequently. In this latter case the Co-operative Credit Societies have been employed to a not inconsiderable extent.

In all 11 such blocks of Crown Land have been allocated in this way. On the whole the scheme has attained a considerable degree of success, the lands are fairly well cultivated; in a report addressed to the Colonial Secretary and dated February 18th, 1919, the Director of Agriculture makes the following remarks:—

“The scheme has now been operated for some nineteen months and may I think be judged on its merits. The net result will be, unless some untoward accident occurs, the increasing of the supply of food stuffs in the island by some 150 to 200 tons of maize plus a considerable quantity of manioc, patate, pistache, etc. On the assumption that we have to face a two-month shortage in the supply of food, the actual amount that is being raised would probably suffice to keep from three to four thousand people during the actual time the shortage will be felt. This is of course barely 1% of the population, but it is the outcome of direct departmental efforts.”

The scheme is under the supervision of an officer especially appointed for the purpose, who visits all Food Settlements at frequent intervals, supervises work and affords whatever assistance may be necessary. The report of this officer is annexed.

J. W. SHAND HARVEY,
Ag. Agricultural Instructor.

REPORT OF THE OVERSEER OF FOOD PLANTATIONS

I was appointed to the Post of Overseer of Food Plantations on March 1st, 1918.
The following is a summary of the Crown Lands under cultivation as food plantations:—

No.	Name	Locality	Area leased	Area cultivated	No. of tenants	Remarks
			acres	acres		
1	La Ferme ...	Black River ...	136	88	74	Holdings vary; some well kept, others moderate. The locality is very dry and the land stony and difficult to work.
2	St. Martin ...	Black River ...	30	27	25	Holdings well kept on the whole.
3	Mon Boudoir ...	Moka ...	109	100	26	Leased to members of St. Pierre Co. Cr. Soc. Cultivated in maize, patate, rice, pistache. Well kept on the whole.
4	Montagne Blanche	Flacq ...	15	15	15	Leased to members of Montagne Blanche Co. Cr. Soc. Lands fairly well kept.
5	Bon Accueil ...	„	13	13	13	Leased to members of Bon Accueil Co. Cr. Soc. Lands well kept.
6	Powder Mills ...	Pamplemousses, within Reformatory walls.	19	19	14	Leased to members of Pamplemousses Co. Cr. Soc. Very well kept.
7	Mon Plaisir ...	Pamplemousses, adjoining R. B. gardens.	11	11	11	Leased to members of Pamplemousses Co. Cr. Soc. Moderately well kept.
8	La Nicolière ...	Pamplemousses ...	20	20	20	Leased to Ville-Bague Co. Cr. Soc. Well cultivated.
9	Joachim ...	Plaines Wilhems ...	20	20	20	Cultivated mostly in arouilles. Plots fairly well kept but locality is subject to depredations by game.
10	Belle Rive ...	Flacq ...	30	30	6	Land is planted as Govt. Lime Plantation. The interlines are leased for cultivation in food crops. The lots are well kept.
11	Lion ...	Grand Port ...	6	6	6	Cultivated fairly well.
12	Signal Mountain	Port Louis ...	4	4	4	Cultivation moderate.
Total ...			413	353	234	

The settlement at Signal Mountain taken over by the Department of Agriculture in February 1918, was not found to be working well, and in March 1918, all tenants except four were dispossessed, on account of non compliance with the conditions of leases. The land is very dry and stony and not suitable for cultivation.

All holdings on all settlements were visited at frequent intervals except Crown Land Lion which was regularly inspected by the Manager of the Maize Sécherie.

A system of earth roads at St. Martin and La Ferme was completed. The Demonstration Plot at La Ferme was maintained.

Whenever opportunity offered holdings of peasant proprietors other than those attached to Food Settlements were visited.

A large amount of planting material was distributed to tenants on Food Settlements and others.

L. MARCEL,
Overseer, Food Plantations.

ANNEXURE VI.

REPORT OF THE CHIEF OVERSEER, CENTRAL EXPERIMENT STATION, RÉDUIT.

The expenditure on work at the Central Experiment Station was as follows for the year 1918:—

	Rs.	c.
Wages, &c. ...	9,440.80	
Food for animals ...	4,666.15	
Dipping Tank ...	396.24	
Quarantine stable for cows ...	220.00	
Improvements to pasture Cattle Station ...	1,486.92	
Metalling of Avenues ...	137.79	
Building paper for Experiments re : Eckart's System of cane growing ...	335.80	
Lime Nursery ...	306.29	
Cane cartage ...	473.62	
Wire Netting ...	338.25	
Opening of new fields ...	93.50	
Inkoos' Maize Grinding Mill ...	339.00	
Importation of Poultry ...	733.68	
Implements, tools, paints, &c. ...	313.38	
Miscellaneous ...	958.66	
Total...	Rs. 20,240.08	

The receipts were as follows:—

Sale of Canes ...	3,060.68
Sale of eggs ...	449.25
Service and sale of Animals and Poultry ...	584.80
Sale of fumier ...	91.46
Total...	Rs. 4,186.19

Plant Introduction

Introduction of canes was precluded by war conditions; attempts were made to secure a number of promising cane varieties from Queensland, but up to the end of the year these had not been received, although advices of their despatch had reached the Department.

Thirty-four varieties of Hill Rice were received from the Director of Agriculture, Ceylon; and 25 varieties from the Director of Agriculture, Federated Malay States. Arrangements were made for trying these out at suitable points.

A consignment of selected varieties of eddoes and sweet-potatoes were received from Antigua through the courtesy of the Imperial Commissioner of Agriculture for the West Indies. Owing to the length of time taken by this material on the voyage only two varieties of eddoes came through in a viable condition.

Small consignments of selected Sea Island Cotton seed were received from the Agricultural Superintendent, St. Kitts, and from the British Growing Cotton Association.

Plant Distribution

Considerable numbers of new local and introduced cane varieties were distributed during the year, in all 1,942 cuttings of 13 varieties were distributed to 39 Estates. Among the most promising canes may be mentioned the imported varieties R. P. 8, R. P. 73, B. 6308, B. 3390, and the locally raised seedlings 131/136, 55/464, 55/609, D. 130/70, 15/04 and Uba seedling No. 4. A general distribution of selected varieties of sweet-potatoes, manioc and yams was made during the year. In addition seeds of selected varieties of maize, guinea-corn, pistache, soy-beans were also distributed.

Experiments with Sugar-Cane

The raising of new seedling sugar-canes was continued during the year. In all 5,000 seedlings were raised from the following parents: D. K. 74, St. Aubin No. 1, Uba seedling 4, White Tanna, 131 & 55; 1,135 seedlings were planted out in one-hole trial and seedlings were selected from

one-hole trials and planted out in six-hole trials, the selected seedlings were obtained from Pamplemousses and Réduit. 134 canes were selected from six-hole trials of the previous years and planted out in 30-hole trials at Réduit. Co-operative experiments with varieties of canes were laid out at the following points on Estates: Highlands, Labourdonnais, Médine, Riche-Lieu, Olivia, Beau-Vallon, Britannia, Long-Mountain and Pamplemousses. The varieties planted at these sub-stations comprised the most promising canes from the collection at the Central Experiment Station; at each sub-station between 40 and 50 varieties were planted. Planting material was for the most part supplied from the Central Experiment Station. Manurial Experiments with canes were reaped at the following points: Mon Désert Carié, Terracine, Riche-en-Eau and Bagatelle. A new series of manurial experiments was laid out at Britannia and arrangements made for the laying out of further trials on other Estates.

In connexion with the reaping of variety cane experiments, an experimental cane-mill driven by a 3-4 horse-power oil-engine was erected at the Central Experiment Station for the purpose of grinding canes from variety experiments, the samples which it was possible to grind with the small hand-mill formerly in use being too small to admit of accurate sampling.

Variety canes were reaped at Réduit as in former years and the large collection of varieties planted in field No. 8 during the year 1916 were cut experimentally for the first time. Canes from the varietal trials at Pamplemousses Experiment Station were transported to Réduit and ground at the new experimental mill; in the latter case 50-lb samples of canes were ground. It may be added that the engine and mill worked very satisfactorily.

Experiments were laid out during the year to test on a small scale Eckart's method of mulching canes with paper, a suitable supply of paper was obtained from South Africa but much difficulty was experienced owing to the tendency which the paper sheets showed to be torn by wind. It would appear that a rather better spring of young canes was obtained from the portions of the field treated by this method as against untreated control portions. It is however as yet too soon to pronounce any definite opinion.

Yields of Canes at Central Experiment Station

The cane crop for the year yielded 236 tons; the canes were sent to Trianon Estate. An old ratoon field was cut to provide fodder for cattle and was subsequently replanted with selected varieties in 30-hole trials. Three more fields of old ratoons were stumped out after cutting, the intention being to plant them in fodder crops for the purpose of feeding cattle at the Cattle Breeding Station.

Irrigation

The Experiment plot established at Cassis with the object of ascertaining whether satisfactory results could be obtained from the irrigation of sugar-cane with sewage effluent, was reaped as first ratoons during the year. The plot yielded at the rate of twelve tons of cane per acre. The experiments showed that sewage effluent can be quite satisfactorily employed for irrigation purposes as suggested by Mr. Harriot.

After consideration the Government have decided not to proceed further with the utilisation of sewage effluent in this way and accordingly after reaping the present crop of ratoons, the experiment will be discontinued.

Experiments with other Economic Plants

Experiments were carried out at Central Experiment Station with the following economic crops: maize, experiments on improvement by selection; patate, trials with 23 varieties and experiments on the propagation of new varieties; yams, experiments with 10 varieties; sorghum, experiments with 4 varieties; cow-peas, experiments with 10 varieties; Pistache, experiments with 10 varieties. It is hoped that at a later date it will be possible to summarise the results of these experiments in the form of special bulletins.

Lime Experiments

During the year a section of the nursery was laid out for the propagation of seedlings of Limes. Seeds for the purpose were obtained from Mon Désert Carié Estate. In all some 4,000 seedlings were raised.

The work of establishing a Government demonstration area under Limes on Crown Land at Belle Rive in Flacq was commenced during the year, about 30 acres being selected for the purpose. The planting work was performed by the Department of Agriculture and was combined with a system of short time leases for cultivation of food crops in the interlines of the limes during the early years of growth.

The necessary clearing was completed by the end of March and the work of planting about half the total area completed by the middle of April.

Phenomenally heavy rains resulted in the destruction of a considerable number of plants during May, but by the end of the year between 700 and 800 plants had established themselves and were growing well. The work of continuing the plantation was begun at the end of the year.

Stock Farm

Satisfactory progress was made with the Cattle Breeding Station during the year. A new stable was erected capable of housing ten animals, the yard of the station was paved and an absorption pit for the reception of washing water from the stable constructed. A house for the reception of manure was built and connected with the sump pit for urine, so that the urine could be pumped on to the manure. A corn and cob grinding machine was purchased and erected under a specially constructed shed. Improvements to pasture were continued, 4 dry walls were built of a total length of 1,191 feet which with existing walls divide the pastures up into six paddocks while the laying down to grass of

additional sections was continued. The dipping tank was improved by raising the walls and covering the tank with a thatched roof, new fencing was erected for the crush pen and drying pen.

When completed the station will comprise four stables with necessary outbuildings, dipping tank and 17½ acres of pasturage. The health of the cattle was maintained throughout the year. The following animals were born :

- 2 pure bred Hissar bull calves
- 2 pure bred Holstein bull calves
- 1 pure bred Mysore heifer calf
- 1 half bred Mysore—Malgache bull calf.

It is hoped to hold the first sale of stock during the year 1919 and that thereafter this will become an annual event.

In January 1918 the rations of animals were changed, maize and acacia being substituted for imported oats and dholl owing to high prices and difficulty in obtaining these articles. From July the experiment was made of introducing hominy chop obtained from South Africa as the principal article of diet, the protein being supplemented by acacia grains. The new dietary was maintained till the end of the year and the animals did well thereunder.

Some difficulties were experienced in obtaining green fodder during the last months of the year owing to continued drought.

The animals were passed through the dipping tank at regular intervals throughout the year. One Mysore Bull died while on loan to an estate. A Hissar bull on loan to another estate was returned in bad condition. In the year 1917 a Hissar bull had died under similar circumstances. As a result and owing to the risk of losing imported strains the policy of loaning animals to estates was with the sanction of the Governor and the approval of the Board of Agriculture discontinued during the year. A scheme for the establishment of stations in the various districts under the control of the Department at which stud cattle would stand for service was formulated during the year as an alternative, in order to facilitate breeders obtaining the advantage of the services of the new breeds.

23 milch cows belonging to private owners were served by the Holstein bull during the year, a service fee of Rs. 3 being charged per service.

2 Malgache bulls imported at the time of the establishment of the cattle breeding station were sold during the year, while two native cows were transferred to the Government dairy at the Barkly Asylum.

Six lambs of the Nigerian breed of sheep were born and 3 goats of the Punjabi breed ; 2 lambs died. Three ewes were transferred from the flock of sheep at La Ferme to Réduit. Two ram sheep of defective type were sold to the butcher. One of the Punjabi ram goats was stationed at Pamplémousses for service, but practically no advantage was taken of this. One of the four Nigerian ram sheep was loaned during the year to breeders at Rivière Sèche, Argy and Bel Air Estates respectively.

Visitors

A considerable number of visitors called at the Central Experiment Station during the year and inspected the experimental work and the stock farm.

Rainfall

The rainfall at the Central Experiment Station was as follows :—

	inches.
January...	3.38
February	15.40
March	12.76
April	5.68
May	...
June	...
July	1.01
August	1.07
September	1.05
October	1.25
November	1.23
December	1.05

F. BERBÉYER,
Ag. Chief Overseer.

ANNEXURE VII.

REPORT ON PAMPLEMOUSSES GARDENS

The expenditure on these gardens for 1918 were as follows :—

Salaries...	Rs. 2,160.00
Labour, Ornamentals	5,631.76
Economics	1,664.91
Miscellaneous	1,745.57

Total... Rs. 11,202.24

Receipts were as follows :—

Sale of canes	...	...	Rs. 402.12
Other Economics	...	...	416.00
Ornamentals	...	...	35.25
Woods and Rafia	...	...	236.03
Fruits	...	...	386.00

Total... Rs. 1,475.40

Ornamental Work

The work of replanting abandoned sections of the gardens was continued during the year and the old Forest Nursery section was nearly completed in this respect. $4\frac{1}{2}$ acres of new lawns were planted, and about 5 acres more got ready for planting during the rainy season of 1919. Much however still remains to be done before the work can be regarded as complete. In particular the western boundary remains in a very bad condition. It is hoped that it may be possible to commence the work of getting this into order during the ensuing year. The flower garden was grassed over, hedges were trimmed and roads kept in order. The work of improving the Grand Bassin was carried out during the year; the aroids round the edge of the pond were removed; the islands in the Bassin which were in a very objectionable condition, were cleaned of noxious growth and grassed; bridges were erected connecting all these islands with one another and with the mainland thereby facilitating access. This work has greatly improved the appearance of this part of the garden and is a great advance from the public health point of view. The circle surrounding two *Araucarias* planted by Her Majesty the Queen on the occasion of her visit to Mauritius in 1901, was cleaned and metalled. Special attention was paid to drains. A number of useless clumps of *Chrysalidocarpus*, *Pandanus*, *Ravenala* and Bamboo were removed. The old Fernery was removed; repairs were made to the Overseer's, Asst. Overseer's and Guardian's quarters. Three stalls for donkeys were erected and the old Insectarium was converted into a stable and coach-house for accomodation of the horse and trap employed in connection with the inspection work by the Officer in Charge of Beetle Destruction.

The surroundings of the buildings of Mon Plaisir were thoroughly cleaned and the piece of land adjoining Mon Plaisir formerly in bush was leased to the Pamplémousses Co-operative Credit Society.

Economic Section

The Economic Section was to some extent remodelled during the year; the land was divided up into plots of approximately equal size and a complete series of roads laid down throughout the Experiment Station. $1\frac{1}{2}$ acres of new land were taken into the Experiment Station and the erection of a boundary wall separating the station from the piece of land leased to the Pamplémousses Co-operative Credit Society was commenced. The work of planting hedges around the experimental plot was commenced, and when the work is completed the experiment station will constitute a compact adjunct to the Botanic Gardens.

A new series of experiments with selected varieties of canes was planted comprising 90 different varieties. The plots planted in 1916-17 were reaped experimentally. Selected seedling canes from the 1917 sowings produced 156 selected varieties, parentage being as follows:—No. 33, 55, 181, D 180, D K 74. These were planted out for further trials on plots of 6 holes each. Cane plants for establishing experiment plots were sent to Britannia, Beau-Vallon and Montagne Longue, while supply plants were sent to Labourdonnais and Olivia. In addition selected cane varieties were distributed to nine Estates in the Pamplémousses area for trial.

Trials were also continued with manioc varieties, sweet potato varieties, yam varieties, pistache, rice, Guinea corn, onions, arouilles and maize.

The plantation of a piece of land adjoining Mon Plaisir in young lime trees, was commenced during the year; a number of plants which were not doing well on the adjoining section now leased to the Pamplémousses Co-operative Credit Society, were lifted and transplanted, while in addition 200 young lime plants were set out. To assist in keeping this area clean, it was divided up among a number of resident labourers working at Pamplémousses Gardens, permission being given to cultivate food crops in the interlines.

The plantation of *Areca catechu* was extended during the year; a further clearing being made. It is the intention to plant in between the young trees with grass; when this work is complete, it will greatly add to the appearance of this section of the Station.

A number of grafts of mangoes of good quality were prepared during the year, 46 in all. 150 litchi layers were also prepared.

Tobacco

The tobacco Expert, A. Lycargue, having completed his engagement with the Department, returned to Réunion in December. Since that time the Overseer of Pamplémousses Gardens has taken charge of the tobacco work, a special Overseer, D. Ramphul, having been appointed to assist in this branch. Plantations were made at Pamplémousses (2 acres), Riche-Terre (3 acres), Réduit (1 acre) and La Ferme ($\frac{1}{2}$ an acre). Trials were conducted with a view to ascertaining the best time for planting; on the whole it appears that the best months for planting are January, February and March.

Carotting operations were exclusively conducted at Pamplémousses, the plants being brought from other stations to that point for carotting.

During the year trials with manufacture of smoking tobacco were carried out under the direction of the Director; as a result between 80 and 90 kilos of cigarette tobacco were prepared and offered for sale on the local market. The produce met with a ready sale and the result appears to

prove quite conclusively that acceptable grades of tobacco can be produced without difficulty in the Colony.

In addition to *Tabac bleu*, small scale trials were also carried out with the following varieties: Java, Sumatra, Burley, Virginia, Kentucky, San Domingo, Corringhy and local Cigar. The only one of these which gave yields approaching those of *Tabac bleu*, was the Corringhy variety.

Plant Exchanges and Distributions

Plants and seeds were received from the Department of Agriculture of Ceylon; the Jardin d'Essai de Ivoloia, Madagascar; Ministry of Agriculture, Egypt; Botanic Gardens, Singapore; Director of Agriculture, CochinChina; Mr. Clement L. Wragge, New-Zealand; and also from Messrs. L. Harel, G. Régnard and A. Ross locally.

* Plants were supplied to: a number of foreign and local recipients, while considerable amounts of planting material of selected varieties of manioc and sweet potatoes were also distributed.

Demonstration Plot, Montagne Longue

This plot was remodelled during the year under the supervision of the Overseer. The lower part was laid out in plots and planted with selected varieties of canes. The plot was enclosed with a wire fence and now presents a very satisfactory appearance.

Visitors

15,122 visitors were recorded during the year and 364 pic-nics, as against 21,488 and 424 in 1917. The behaviour of visitors was on the whole satisfactory, only two arrests being made for theft.

Rainfall

The following is the rainfall for the year:

	Inches
January	4.34
February	13.53
March	14.20
April	8.60
May	4.50
June	2.97
July	4.36
August	1.05
September	.58
October	.94
November	1.05
December	.69

L. M. LECLERC,
Overseer, Pamplémousses Gardens.

ANNEXURE VIII.

REPORT ON

CUREPIPE GARDENS AND EXPERIMENT STATION

The expenditure at this Station was as follows:—

Salaries	Rs. 600.00
Labour expenses	2,369.25
Miscellaneous	405.19
Total... ..	Rs. 2,774.44

The receipts were as follows:—

Sale of Ornamental Plants	Rs. 487.57
Sale of Economic Plants	51.50
Sale of Flowers	205.07
Miscellaneous	54.50
Total... ..	Rs. 798.64

Economic Section

The Tea plantation made good progress during the year; the soil was regularly forked and weeded; half of the plot was mulched with sweepings and leaves from the Botanic Gardens. The first pruning was made in July and pluckings made throughout the year; the yield was 500 kilos of green leaves.

The banana plantation was uprooted, the plants not doing well; the situation of Curepipe Gardens is too high and cold for bananas. The old banana plot was worked up and laid out into beds for the trial of sixty varieties of hill rice imported from Ceylon and India. Sowings were made in December and seedlings grew fairly well.

The Pine Apple section is gradually being closed, certain of the imported varieties have been sent to Pamplémousses Gardens. The old Pine Apple plot is being converted into a nursery for roses.

The Camphor plantation was removed, the plants consisted of the ordinary local variety of camphor which experiments had shown do not yield solid camphor on distillation. It is proposed to convert the Camphor section into an adjunct of the Educational Section and to establish there a collection of indigeneous trees of the Colony.

Ornamental Section

The Flower Garden and Rosery were maintained in good order ; owing to war conditions seeds of annual plants ordered through the Crown Agents were received too late to enable the planting at the proper time. A supply of seeds was secured on the local market, which grew fairly well.

A collection of Eucalyptus trees imported from California was planted along the border of the Forest Nursery.

The Fernery was thinned and Camelia plants existing therein pruned ; Orchids, ferns, Caladiums, Begonias and Dieffenbachias were planted at suitable points and on the side of the ravine bordering the stream. The appearance of the Fernery was considerably improved thereby.

The labelling of specimens was continued.

Nursery

The work of the nursery continued to expand and there is a steady demand for ornamental plants and flowers raised therein. The work of propagating roses by budding, for sale to the public, continues to grow ; 16 new varieties of roses were propagated during the year.

Educational Section

The Educational Section was completely remodelled during the year. A grant of Rs. 100 in aid of this work was made by the Education Department. The usefulness of the section has been improved considerably in consequence. Four demonstrations were given to Government Teachers in the Educational Section by Mr. F. Harwood, M.A., A.I.C.

Roads

The roads and paths were maintained during the year, a new entrance was opened in October at the upper end of the Garden.

Rainfall

The rainfall during the year was as follows :

	Inches
January	6.97
February	28.20
March	14.67
April	16.30
May	7.07
June	7.88
July	10.28
August	2.65
September	3.45
October	2.67
November	5.52
December	3.60
Total inches ...	109.26

Visitors

A large number of persons visited the gardens during the year. The Gardens are much used as a place of resort by residents in Curepipe.

F. LECLERC,
Overseer, Curepipe Gardens

ANNEXURE IX.

REPORT ON

LE RÉDUIT GROUNDS

The expenditure incurred upon the upkeep of Le Réduit Grounds was as follows :—

Cost of supervision (Overseer, Prison Warders & Sirdar) ...	Rs. 2,064
Cost of labour	3,360
Miscellaneous	416
Total ...	Rs. 5,840

Grounds

A new tennis court was made, an old one slightly enlarged and various improvements effected in the pleasure grounds. All golf and tennis courts, lawns, avenues and canals received attention.

Flower Gardens

A satisfactory display of flowers and ornamental plants was secured throughout the year.

Kitchen Gardens

Regular control was carried out against pests of various kinds. The cultivation of peas gave rise to difficulties at the outset but subsequently the use of quick lime gave satisfactory result against attacks of fungi.

Vegetables were supplied uninterruptedly to Government House throughout the year.

Rainfall

	Inches
January	4.01
February	17.89
March	12.42
April	8.30
May	3.05
June	3.63
July	4.92
August	1.42
September	1.31
October	.46
November	1.46
December	.89

A. VALASOIS,

Overseer, Le Réduit Grounds.

ANNEXURE X.

REPORT ON THE WORK OF THE
MANAGER OF THE MAIZE SÉCHERIE

During the year under review maize from Estates was received for kiln-drying as under :

Sender	Quantity received	Mean moisture content	Quantity returned	Mean moisture content
	kilos		kilos	
Le Vallon S. E.	12,699	24.9	12,026	12.8
Beau Vallon S. E.	5,981	23.0	5,250½	12.9
Riche-en-Eau S. E.	6,165	28.4	5,673	13.1
Mr. N. Gheude	3,195	21.9	2,854	12.5
Ferney S.E.	3,000	22.6	2,837	12.7
Highlands S.E.	1,002	26.8	880	12.8
Mr. H. Mayer	226	...	208	...
Total	32,268	24.1	29,728½	12.8

During the months of March and April Government purchased a small amount of maize from tenants from the La Ferme Food Settlement on a profit sharing basis, the rate being 5 cents per kilo for maize on the cob and 8 cents per kilo for shelled maize, a subsequent distribution of profits was made on the basis of two-thirds of profits being paid to contributing growers while one-third was retained by Government. The total amount of maize purchased in this way amounted to 860 kilos while the additional bonus paid to growers in this way amounted to 3.3 cents per kilo.

A small quantity of maize was purchased from small growers at Mahebourg during the month of June at the rate of 13 cents per kilo ; the total amount purchased in this way was 1.504 tons. The maize was kiln-dried and preserved in the storage bins of the Sécherie. The average moisture content before drying was 26.2. Owing to the higher prices which were ruling for maize during practically the whole year, buying operations were restricted to a much greater extent than would be the case under more normal circumstances.

During the month of August and September the Department of Agriculture was by direction of the Governor charged with the duty of securing maize locally for supply of public Institutions. In this way 27.26 tons of maize were purchased through the agency of the Manager of the Maize Sécherie and distributed to public Institutions, the average price being 22 cents per kilo including incidental expenses. The maize was handled, rebagged and despatched at the Sécherie ; as it was required for immediate consumption it was not kiln-dried. As the result of this experience it was found that at this period of the year it was less costly to import maize from South Africa.

The meal-making machine at the Sécherie was used on a number of occasions for making meal. The total amount of meal ground was 2,080 kilos. The machinery at the Sécherie worked satisfactorily throughout the year. The storage bin shed was enclosed with ravenal panels to protect the bins from the sea blast which it was found was liable to occasion condensation on the inside of the bins.

Agricultural Work

Under the terms of the appointment of the Manager of the Maize Sécherie, it was arranged that when his services were not required in connection with the work of the Sécherie, he could be employed for other lines of agricultural work. In this way the time of the Manager of the Maize Sécherie was occupied during certain periods of the year. 10 visits were paid to estates for the purpose of supervising experiments with Sugar-cane laid out under the direction of the Department of Agriculture; 14 visits were paid to Estates for the purpose of collecting planting material for distribution to small planters and for taking soil samples for analysis. In addition, 40 visits were paid to holdings of small planters in old Grand Port and Petite Savanne. The lands of practically all small planters in Old Grand Port have been visited and inspected from time to time, and a complete register of small planters in this part of the island prepared. A commencement has been made in similar work in Petite Savanne. The small Government Food Settlement at Crown Land Lion was visited five times during the year.

Distribution of Planting Material

In connection with propaganda for the increased cultivation of food crops a considerable amount of work has been accomplished in collecting planting material from Estates and other sources and distributing it to small planters. Literature has also been widely distributed at suitable points.

Demonstration Plot

A Demonstration plot was inaugurated on a piece of Crown Land in Mahebourg. The plot was laid out under the direction of the Manager of the Maize Sécherie and has been worked under his supervision. Trials with new and improved varieties of maize, patate, manioc and pistache have been carried out, while the plot has served as a useful centre for the distribution of planting material of the crops in question.

Collection of Agricultural Statistics

Agricultural Statistics were collected and forwarded to the Statistical Division in respect of the areas under cultivation in Old Grand Port and also in respect of the Long Mountain area in the district of Pamplémousses.

A. DELORD,
Manager of the Maize Sécherie.

ANNEXURE XI.

REPORT ON THE

BOARD OF AGRICULTURE FOR 1918

The Board of Agriculture, established under article 14 of Ordinance No. 30 of 1912 consists of:—

His Excellency the Governor.—*President*
The Director of Agriculture.—*Vice-President*

The following members were appointed under Government Notification No. 6 of January 12th of 1918, for the year 1918:

The Honourable Sir Henry Leclézio, K.C.M.G., The Honourable J. A. Ducloux, The Honourable Maurice Martin, G. Antelme, Esquire, E. Carcenac, Esquire, T. L. d'Arifat, Esquire, Arthur Dalais, Esquire, L. H. de Froberville, Esquire, H. G. Ducray, Esquire,	W. H. Ebbels, Esquire, Max. Guimbeau, Esquire, Amédée Hugnin, Esquire. T. W. Innes, Esquire, F. N. Langlois, Esquire, George Mayer, Esquire, Gabriel Régnard, Esquire, Adrien Wiéhé, Esquire, Hurry Churun.
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Meetings of the Board of Agriculture were held on February 27th and September 4th 1918.

February Meeting.—At the February meeting presided over by His Excellency the Governor the following printed reports and Bulletin were laid before the Board:—

- 1.—Entomologist's report on his visit to Madagascar;
- 2.—Eckart's method of Cane cultivation;
- 3.—Commercial fixation of Atmospheric Nitrogen;
- 4.—Leaflet on Root Disease of cane;
- 5.—Leaflet on manurial value of commonly occurring organic substances;
- 6.—Bulletin No. 9 General Series, on Tobacco.

The following matters received consideration:

- 1.—Vanilla Consolidation Ordinance;
- 2.—Railway Cane Traffic,
- 3.—Loan of Stud Animals to Estates.

September Meeting.—At that meeting, presided over by His Excellency the Governor, the following papers were laid before the Board :

- 1.—Report on *Phytalus Smithi* in Mauritius ;
- 2.—Examination papers of Department of Agriculture ;
- 3.—Leaflet on Construction of Dipping Tanks ;
- 4.—Leaflet on Substitutes for wheat flour ;
- 5.—Leaflet on Fowl Cholera.
- 6.—Leaflet on Pistache, Pistache-Oil and Press Cake ;
- 7.—Bulletin No. 3 Statistical series on Foodstuffs ;
- 8.—Bulletin No. 6, Scientific series, on the Importation of *Tiphia parallela* ;
- 9.—Bulletin No. 10 General series, on Regulations and Syllabus of the School of Agriculture ;
- 10.—Regulations with reference to the Registration of Agricultural Chemists ;
- 11.—Summary of investigations by the Department of Agriculture, from January to June 1918,
- 12.—Statistical data for Blue Book.

The following matters received consideration :—

- 1.—Destruction of *Phytalus Smithi* ;
- 2.—Eckart's system of Cane Cultivation ;
- 3.—Work of the Maize Sécherie ;
- 4.—Plantations of Food Crops ;
- 5.—Root disease of Sugar cane ;
- 6.—Hominy Chop ;
- 7.—Utilisation of Government Stud Cattle ;
- 8.—Government Dipping Tanks.

HENRI ROBERT,
Secretary.

Number of Beetles (*Phytalus Smithi*) captured during the year 1918 (*Pamplémousses*).

Months-1918	Mon Rocher	The Mount and Pte. Rosalie	Maison Blanche	Beau Plan	Esperance	Grande Rosalie	Small Planters	St. André Souvenir	Beau Séjour	Solitude	R. B. Gardens	Total No. of Beetles	Total spent
January	719,490	7,508,310	525,600	6,717,168	3,234,100	196,159	1,537,601	2,721	52,230	15,815	11,440	20,520,879	4,948 56
February	91,442	938,089	78,649	1,780,189	223,077	17,911	357,700	6,650	41,482	5,940	2,644	3,445,968	1,867 90
March	1,875	55,003	6,287	221,999	48,745	1,798	40,919	3,963	6,085	356		387,030	720 61
April		2,825		19,175	16,350		1,500					39,850	357 50
May													895 20
June													447 76
July													283 83
August													156 44
September													222 37
October	306	293		2,725	755	882	345					5,416	712 08
November	502,480	3,763,525	42,450	2,311,130	47,360		414,375	81,300				7,162,620	5,575 57
December	289,050	9,957,000	137,500	5,677,900	126,500	110,500	954,250	193,250				17,445,950	5,755 57
Beetles : Total	1,604,643	22,225,045	790,486	16,630,286	3,696,887	327,250	3,306,690	287,884	99,797	22,111	14,084	49,006,813	21,943 39

Number of Larvæ dug out

	The Mount and Petite Rosalie	Maison Blanche	Beau-Plan	Grande Rosalie	Small Planters	Souvenir	Total
April	113,400						113,400
May	834,500	4,000	294,600		400		1,133,500
June			320,000				320,000
July			609,600			13,200	333,200
August			7,200			56,700	764,305
September			44,600				7,200
Total	947,900	4,000	1,276,000	98,005	400	69,900	2,396,205